

Supply Chain, Workforce, Ports and Marine Transportation Working Group

Supply Chain

Draft Initial Recommendations – February 2022

All 5 initial recommendations are supported by consultants' preliminary findings.

Draft Vision Statement for Offshore Wind Supply Chain

Maine is a state strongly rooted in natural resource heritage industries and powered by an entrepreneurial spirit. Maine is home to innovative companies who have built upon maritime heritage – of the centuries of working with the wind, the waves, and the tides – to successfully participate in the burgeoning offshore wind sector for the last two decades. Continued innovative growth of a Maine offshore wind supply chain requires there to be a visible, viable business opportunity, both for existing Maine companies and for those we wish to attract. Continued success also requires leadership, support, and advocacy from the State. The recommendations in this document support the continued development of Maine's offshore wind supply chain for fixed and floating technologies and are key to achieving the goals of Maine's Economic Development Strategy, Economic Recovery Plan, Climate Action Plan, and Clean Energy Economy Report.

Recommendation #1: Formally establish and initiate a clear and consistent state policy for offshore wind (OSW), along with a sustained, sequenced effort to support it.

Actions

- Establish clear state policy supportive of offshore wind and informed by a broad spectrum of Maine stakeholders;
- Announce an offshore wind goal or mandate¹⁹ with multiple procurement solicitations and realistic local content and best practice requirements; and
- Develop a timewise ports development plan with a dedicated investment strategy.

Rationale

- OSW will likely happen in the Gulf of Maine regardless of Maine's actions; a procurement goal or mandate is likely the only way to ensure economic benefits from the development come to Maine.
 - State-level offshore wind procurement policies are driving U.S. offshore wind developments and related investments.
 - Each state is competing to maximize benefits to their state, there is limited coordination among states at present.
 - Developments in the Gulf of Maine that make landfall in Maine will maximize

¹⁹ With additional work necessary to refine an OSW goal or mandate.

benefits to Maine.

- Maine should engage stakeholders early and often to maximize opportunities for Maine stakeholders with relevant knowledge and expertise, as well as enhance co-existence of OSW with existing ocean users and the environment.
- The offshore wind industry doesn't know what Maine wants. Given the degree of investment risk present in this developing industry, investment attraction in Maine is unlikely to occur without a clearly expressed commitment of interest and long term certainty for developers.
- Transmission constraints, workforce constraints, supply chain constraints may incentivize developments to land in southern New England.

Recommendation 2: Establish strong support and advocacy for all offshore wind opportunities, including supply chain companies, ports, workforce, and research.

Actions

- Establish a commissioner-level industry advocate who can help support Maine businesses for offshore wind and speak on behalf of the State in conversations with offshore wind developers, and actively promote Maine as a prospective destination for offshore wind development and related investments.
- Assess whether a person or separate Maine Offshore Wind Business Development Authority outside of state government is needed to support Maine businesses and to facilitate and advance industrial relationships.
- Provide resources and incentives to Maine businesses in offshore wind or interested in pivoting to offshore wind.
- Establish and provide long-term (at least 10 years) support for a central state-driven OSW information hub website that provides clear, accessible, and high-quality business information that a developer may need to evaluate Maine as a potential landing site (whether for offices, ports or OSW developments). The hub should include, at a minimum:
 - Supportive policies
 - Ports, port investments, and related information
 - OSW resource assessments, environmental resource studies, etc.
 - Regulatory information
 - Constraints (transmission, etc.)
 - Supply chain, related sector support, and workforce training & education opportunities
 - Supportive business environment and incentives
- Conduct interviews with major developers to understand the industry perspective on Maine. For example, what limitations do developers see, what constraints are they concerned about, what sort of public-private partnerships facilitate sustainable investments, etc.?
- Conduct interviews with key developers, ports owners/operators, and key contractors

in the region to identify existing or future constraints in the region and how Maine can be a viable resource for services and ports space to support OSW projects south of Maine. Based on this information in a plan, Maine should have a trade delegation heading south and clearly advertising.

- Promote Maine and Maine companies in national and international industry
 - In coordination with Maine industry, help Maine companies foster relationships with developers, ports investors, and higher Tier supply chain companies to learn more about opportunities and develop partnerships that can be leveraged in near-term and long-term OSW projects.
 - Identify speaking/promotional opportunities for Maine industry leaders to further develop/build relationships in OSW.

Rationale

- Maine will support industry participation related to both fixed and floating OSW, whether in the Gulf of Maine or in developments further south. The current U.S. pipeline of OSW projects comprises ~40GW with 12 projects being installed concurrently in 2025 and 2026. A 2021 supply chain contracting forecast predicts \$109B in private investment in the U.S. offshore wind by 2030 – suggesting ample supply chain opportunity in the U.S. offshore wind sector²⁰
 - Involvement in fixed-foundation developments south of Maine will provide an opportunity for Maine entities to access real opportunities today while strengthening our supply chain for future floating offshore wind developments. Additionally, participation in fixed-foundation developments provides an opportunity to start building relationships between Maine entities and European developers and suppliers.
 - Involvement in pilot/pre-commercial floating OSW projects in the Gulf of Maine will provide Maine ports, companies, and workforce the opportunity to strengthen these assets for future floating offshore wind projects. Global deployment projections for floating include 10.7 GW by 2030 and 70 GW by 2040.²¹ In federal waters of the United States, much of the high-quality offshore wind resource, including in the Gulf of Maine, aligns with deeper waters that currently require floating technologies.²² Anticipated upcoming BOEM offshore wind lease areas off Northern and Central California (late 2022), Oregon (late 2023), and the Gulf of Maine (mid-late 2024) will likely be developed with floating technologies.²³
 - Workforce readying and industry readying should start right away

²⁰ “Supply Chain Contracting Forecast for U.S. Offshore Wind Power: 2021”, Special Initiative for Offshore Wind, 2021, <https://sites.udel.edu/ceoe-siow/>

²¹ “Floating Offshore Wind Joint Industry Project Phase II Summary Report”, Carbon Trust, 2020, https://prod-drupal-files.storage.googleapis.com/documents/resource/public/FWJIP_Phase_2_Summary_Report_0.pdf

²² “Offshore Wind Market Report: 2021”, NREL, 2021, https://www.energy.gov/sites/default/files/2021-08/Offshore%20Wind%20Market%20Report%202021%20Edition_Final.pdf

²³ “Secretary Haaland outlines ambitious offshore wind leasing strategy”, BOEM, 10/13/21, <https://www.doi.gov/pressreleases/secretary-haaland-outlines-ambitious-offshore-wind-leasing-strategy>

- Port development has a longer time horizon, but should also start right away
- Maine has significant assets and advantages to unlock the potential of the offshore wind sector for Maine:
 - Significant expertise in engineering and design, permitting, maritime operations, and marine composites already engaged in the offshore wind industry for over a decade;
 - Gateway for international trade;
 - Deepwater ports;
 - Maritime and fisheries industry heritage and expertise;
 - World-leading research and development, educational institutions - a major asset for investment attraction, workforce development, and exportable expertise and technology;
 - A strong manufacturing industry, including composites;
 - Enterprising and engaged citizenry;
 - World class offshore wind resource; and
 - Proximity to East Coast population centers and high demand markets.
- Barriers to entry in the offshore wind industry may be mitigated for Maine entities with advanced planning:
 - Barriers include state-based local content requirements, industry-specific certifications, stringent health and safety requirements, high throughput requirements for suppliers, lengthy (5-10 year) contracting timelines, heavy reliance on long-term relationships between suppliers and developers, and varying levels of profitability compared to other industries such as defense and aerospace.²⁴
 - Relationship building between European developers, suppliers, and ME entities is critical to overcoming the barriers
 - European companies are leading and will lead US offshore wind developments (BNOW).
 - The bulk of the initial OSW supply chain will be met by European suppliers.²⁵

Recommendation #3: Pursue national and international opportunities to prepare and promote Maine’s supply chain and address current and future supply chain gaps.

Actions

- Identify external market opportunities for market-ready or in-market Maine products and expertise
 - Assist Maine companies and research institutions to identify external market

²⁴ “Foundation 2 Blade Training Manual, Business Network for Offshore Wind”, 2021, at Page 246 to 259.

²⁵ "Report: Offshore wind supply chain worth \$109B over 10 years," AP News, <https://apnews.com/article/business-new-jersey-atlantic-city-university-of-delaware-wind-power-19b67ff8bf285cf74e5fd19b39037c9b>

- o opportunities in the national and international OSW supply chain.
 - o Identify financial resources to support technical assistance and/or market access programs for Maine businesses wishing to pivot and/or access external market opportunities.
- Promote partnerships between Maine firms and international firms wishing to access US-based OSW projects:
 - o Position Maine as a landing spot for international companies interested in entering the US OSW market.
 - o Evaluate investment attraction assets as they might relate to OSW projects or supply chain partners, engaging municipalities early in this evaluation process, as appropriate:
 - Opportunity Zones (OZ);
 - Foreign Trade Zones (FTZ) as they might relate to import or distribution centers for Maine-based or regional projects;
 - In collaboration with Workforce and Port subgroups and in coordination with the Energy working group, create strategy to promote Maine’s workforce and workforce training programs, current and future port developments, existing supply chain partners, and economic development incentives as investment attraction assets.
- Continue supporting and developing the [Maine Offshore Wind Supply Chain Registry](#)²⁶ to highlight and connect Maine companies to offshore wind opportunities.
- For all actions, regularly communicate with industry to ensure programmatic support is meeting the development needs of businesses in, entering, or wishing to enter, the OSW market.

Recommendation #4: Provide support and pursue regional opportunities to ready Maine’s offshore wind supply chain and address current and future supply chain gaps.

Actions

- Have a clear policy and state objective to bring to regional forums, such as:
 - o BOEM Gulf of Maine Renewable Energy Intergovernmental Task Force
 - o ISO-NE
- Pursue beneficial regional collaboration:
 - o Assess feasibility and benefits of a regional MOU between New England states, including reciprocal content agreements, modeled after the [SMART Power MOU](#) between Maryland, North Carolina, and Virginia.
 - o Pursue project-specific regional collaboration opportunities.
 - o Organize training and education across New England States to foster additional

²⁶ The Maine Offshore Wind Supply Chain Registry is a component of the Business Network for Offshore Wind’s Supply Chain Connect national registry.

regional collaboration.

- Consider supporting a regional or national content requirement to efficiently engage developers in U.S. OSW and enhance Maine’s ability to participate in the sector.
- Provide state incentives to foster manufacturing and the supply chain for OSW, particularly for those areas of greatest opportunity for Maine.
- Build capacity to adapt Maine’s existing land-based clean energy supply chain and support sector to manufacturing, planning, and design, installation and commissioning, operations and maintenance offshore.

Rationale (applying to both Recommendations #3 and #4)

- We have a mismatch between what Maine can offer for supply chain components and what industry needs; this may be true for NH and MA, too. There may be opportunities to collaborate. (Regional)
- The timing is uncertain: commercial leases with floating OSW will start on the west coast according to BOEM’s announcement and this may affect the timing of our regional coordination and other supply chain opportunities. (Regional)
- Companies that can or want to engage in the future OSW industry may be able to take advantage of existing opportunities domestically and internationally. (Both)
- Not all Maine companies that could serve the offshore wind industry necessarily want to or are prepared to. (Both)
- By 2050, 60% of offshore wind installations will be in Asia, 22% in Europe, and 16% in North America. (IRENA) (Domestic/International)
- All current (and likely near-future) developers in the U.S. are European. (Domestic/International)

Recommendation #5. Explore opportunities to support Maine businesses suited to build and/or retrofit smaller offshore wind vessels (e.g., Crew Transfer Vessels, tugs, Service Operations Vessels), as well as operate and service all types of offshore wind vessels.

Rationale

- There is a shortage of vessels, vessel services, and vessel operations that will be required along the U.S. Atlantic coast for offshore wind projects in the pipeline (12 projects installed in 2025-2026 with an anticipated need of 25-40 vessels).

Topics requiring additional discussion:

- Offshore wind goal or mandate
- Further exploration of regional collaboration, including discussion around formal collaboration discussions between the three Gulf of Maine states led by the three Governors

Ideas that the Energy Strategies and Markets Working Group is best positioned to develop:

- Evaluate and address transmission constraints associated with landing large-scale offshore wind developments in Maine.
- Evaluate whether changes are needed to land use regulatory regimes at the state level to ensure cable landfall and OSW-related land-based developments are permitted (e.g., an allowed conditional use).
- Consider pre-permitting transmission cable routes to attract developers and help secure benefits of offshore wind development in the Gulf of Maine for Maine.

Future supply chain topics for the WG to discuss (not exhaustive):

- Further discussions and cross-referencing with XODUS' preliminary findings in the Maine OSW Supply Chain Opportunity Assessment (still in draft, not addressed yet). The preliminary findings may:
 - Support this Working Group's initial recommendations;
 - Refine this Working Group's initial recommendations (e.g., further details on regional collaboration); and/or
 - Indicate topical areas the Working Group's initial recommendations are generally missing at this stage, for example:
 - Investments
 - Innovations/Research & Development
 - Wind Energy Area leasing
- Collaborate with Fisheries Working Group to craft additional supply chain recommendations
- Consider a recommendation focused on engaging planning and economic development professionals in Maine to facilitate Maine's participation in the offshore wind sector
- Consider a supply chain recommendation around complementary activities with floating - e.g., green hydrogen and ammonia
- Further consider comments from the Advisory Committee on December 14, 2021:
 - Consider timing and starting some actions earlier to support supply chain development and a ports strategy; provide flexibility to explore various offshore wind opportunities